Remarks

Reconsideration of this Application is respectfully requested.

Claims 1-39 are pending in the application, with claims 1, 14, 15 and 27 being the independent claims.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Response to Examiner's Comments in the Final Office Action

The Examiner has maintained the rejection of claims 1, 4, 5, 10-15, 18, 19 and 24-27 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,600,744 to Carr *et al.* ("Carr"). In the previous Amendment and Reply, filed April 10, 2006, Applicants traversed these rejections on the basis that Carr does not teach or suggest a method for classifying a data packet in a network interface that includes the step of "generating a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter" as recited by independent claims 1 and 15 or the step of "generating a plurality of optimized program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter" as recited by independent claim 14, or a computer program product that includes "means for enabling [a] processor to generate a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter" as recited by independent claim 27.

The Examiner has also maintained the rejection of claims 2, 6-9, 16, 20-23, 28 and 30-39 under 35 U.S.C. § 103(a) as unpatentable over Carr in view of Synnestvedt, the rejection of claims 3 and 17 under 35 U.S.C. § 103(a) as unpatentable over Carr in view of Connery, and the rejection of claim 29 under 35 U.S.C. § 103(a) as unpatentable over Carr in view of Synnestvedt and further in view of Connery. In the previous Amendment and Reply, Applicants traversed these rejections as well because Synnestvedt and Connery did not remedy the deficiencies of Carr with respect to the independent claims from which these claims depend.

In the "Response to Arguments" Section of the final office action, the Examiner states that the Applicants' arguments with respect to Carr are not persuasive because (1) the features upon which Applicants relied in traversing the rejections are not recited in the rejected claims; and (2) "it is well-known to one of ordinary skill in the art that hardware functionality and processes can be implemented through software based upon the requirements of the system." Each of these assertions will now be addressed.

The Examiner's Assertion that the Recited "Program Modules" Could be Construed to Cover Hardware is Incorrect

The Examiner states that Applicants' argument that Carr does not teach or suggest the generation of software-implemented program modules is not persuasive because independent claims 1, 14, 15 and 27 do not recite that the claimed "program modules" are implemented in software. However, Applicants respectfully submit that a person skilled in the art would understand the term "program modules" to mean a module implemented in software, since the term includes the word *program* (as in "computer program"). Conversely, a person skilled in the art would certainly not understand the term "program module" to refer to hardware.

Furthermore, each of independent claims 1, 14 15 and 27 recite that the claimed "program modules" are "executed". Again, Applicants submit that a person skilled in the art would not understand hardware modules to be "executed". Rather, "executed" is a term of art that is applied to computer programs. Thus, these claims make abundantly clear that the recited "program modules" are implemented in software.

Finally, independent claim 27 is a computer program product claim that recites "means for enabling [a] processor to generate a plurality of program modules". Applicants submit that a person skilled in the art would not understand a processor to be capable of generating *hardware*, and thus for this reason also would understand the recited program module to refer to software.

For the foregoing reasons, Applicants submit that a person skilled in the art would understand the "program modules" recited in independent claims 1, 14, 15 and 27 to be implemented in software.[1] Thus, Applicants arguments' arguments that Carr does not teach the generation of software-implemented program modules as presented in the Amendment and Reply filed April 10, 2006 still stand.

The Examiner's Assertion that Hardware and Software are Interchangeable Is not Proper and Does Not Support the Rejections Under 35 U.S.C. § 102(e)

The Examiner also asserts that even if the recited "program modules" are software-based, the distinctions over Carr as presented by Applicants in the previously-

[1] The Examiner argues that "[a]lthough the claims are interpreted in light of the specification, limitations from the specification are not read into the claims", citing *In re Van Geuns,* 988 F.2d 1181 (Fed. Cir. 1993). However, in the present case, Applicants are not reading limitations into the claims—rather, by use of the terms "program modules" and "executing", which one skilled in the art would immediately understand to refer to software, the software limitation is already present in the claims. Words of a claim are to be given their "ordinary and customary meaning." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The ordinary and customary meaning "is the meaning that the term would have to a

filed Amendment and Reply are not sufficient to overcome the rejection because "it is well-known to one of ordinary skill in the art that hardware functionality and processes can be implemented through software based upon the requirements of the system."

In the first place, this assertion does not support a rejection of independent claims 1, 14, 15 and 27 under 35 U.S.C. § 102(e). To reject a claim as anticipated, the Examiner must show that each and every feature of the claim is taught in a single prior art reference. Here, the Examiner seems to be making an argument that the invention is unpatentable over the combination of Carr and the knowledge of one of ordinary skill in the art. This argument however can only be made in the context of a rejection under 35 U.S.C. § 103(a).

Furthermore, the Examiner points to no prior art to support his contention that it would be trivial to implement the hardware-based features taught in Carr in software or to any motivation in the art to implement such features in hardware. Absent providing such evidence, the Examiner cannot support a rejection based on Carr even under 35 U.S.C. § 103(a).

Finally, the present invention does not simply recite software-based "program modules" but recites a network interface or computer program product that generates such "program modules". Thus, the Examiner's argument that the recited "program modules" can be implemented in hardware misses the point. Even if one accepts (for the sake of argument only) that the recited "program modules" can be implemented in hardware, the Examiner must also show that Carr teaches or suggests some element

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person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application." *Phillips v. AWH Corp*, 415 F.3d 1303 (Fed. Cir. 2005).

capable of automatically generating such "program modules". No such showing has been made.

Conclusion with Respect to the Examiner's Comments

Thus based on the foregoing arguments, and the arguments previously made in the Amendment and Reply filed April 10, 2006 (reproduced below), Applicants respectfully submit that the rejection of claims 1-39 based on the prior art be reconsidered and withdrawn.

Rejections Under 35 U.S.C. § 102

The Examiner has rejected claims 1, 4, 5, 10-15, 18, 19 and 24-27 under 35 U.S.C. § 102(e) as being anticipated by Carr. For the reasons set forth below, Applicants respectfully traverse.

Independent claim 1 is directed to a method for classifying a data packet in a network interface. The method includes the steps of:

(a) receiving a plurality of classification parameters;

(b) generating a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter;

(c) receiving the data packet;

(d) generating a header, said header indicating whether one or more predefined fields are present in the data packet and identifying a location of said one or more predefined fields in the data packet when present;

(e) executing each of said plurality of program modules, wherein each of said plurality of program modules receives said header and generates a test result based on contents of said header and contents of the data packet; and

(f) processing the data packet based on said test results from said plurality of program modules.

Carr does not teach or suggest each and every one of the foregoing steps of claim 1. For example, as will be explained below, Carr does not teach or suggest at least "generating a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter".

Carr is directed to a method and apparatus for packet classification that stores "rules" or parameters for classifying the packets in a memory structure, such as a DRAM. *See* Carr, col. 2, ll. 32-33 ("The rules or parameters for classifying the packets are stored in a memory structure.") The purported benefits of storing the classification parameters in a memory structure include the ability to store a large number of parameter sets and easy modification and selection of the parameters for classification purposes. *See* Carr, col. 2, l. 57-col. 3, l. 4. Once the classification parameters have been selected, they are provided to a comparison block 50 that includes comparators that perform different types of comparisons between the selected classification parameters and information derived from the header of a packet (termed a "key"). *See* Carr, col. 7, ll. 26-28 ("The comparison block 50 illustrated in FIG. 2 includes comparators that perform different types of comparisons on the information in the key 24 and the rule 42."). Such comparison operations include a 5-bit equal compare, a 32-bit mask and compare, a 12-bit mask and compare, an 8-bit mask and range, and a 16-bit range. *See* Carr, col. 7, ll. 29-60, FIG. 2. According to Carr, the comparison block is implemented in hardware. *See* Car, col. 12, ll. 9-11 ("Preferably, all the components illustrated in FIG. 3 are implemented on a single integrated circuit that is dedicated to performing packet classification operations.").

In contrast to the teachings of Carr, the invention of claim 1 does not perform comparison operations in hardware. Rather, in claim 1, a program module is generated that tests "for adherence to at least one corresponding classification parameter." As described in the specification of the present application:

> Primitive generator and test applicator 420 generates primitives (i.e., program modules) which are based on the classification parameters 403. The generated primitives (not shown in FIG. 4) are used to test the target data packet for compliance with the classification parameters 403 with which the primitives are associated.

See Specification at paragraph [0069]. Example operations performed by the program modules include mask and range and mask and compare operations. *See* Specification at paragraphs [0143]-[0159] and FIGS. 15A, 15B and 15C. The generation of program modules as recited in claim 1 provides flexibility because the various testing operations that can be performed can be easily modified since the operations are defined in software. Moreover, the software modules can be executed in any order. *See* Specification at paragraph [0015] ("Further, the program modules of the present invention can be executed in any order. Thus, when randomly ordered classification criteria are encountered, the criteria does not have to be reordered.").

As noted above, in Carr, the various testing operations (e.g.., a 5-bit equal compare, a 32-bit mask and compare, a 12-bit mask and compare, an 8-bit mask and range, and a 16-bit range) are implemented in hardware and are thus not easily modified or reordered. Furthermore, each of the testing operations must be configured in advance of receipt of the classification parameters or "rules", whereas in the invention of claim 1, the program modules are generated after receiving the classification parameters.

The Examiner asserts that the feature of "generating a plurality of program modules for testing for adherence to at least one corresponding classification parameter" is taught in FIGS. 1, 3 and 4 and at column 2, lines 31-36 of Carr. *See* Office Action at pp. 3-4. In particular, the Examiner asserts that the "rules" stored in Carr's memory structure correspond to the recited "plurality of program modules". However, as noted above, the "rules" stored in Carr's memory structure are simply classification parameters and thus are analogous to the recited "plurality of classification parameters" recited in claim 1, not the recited "plurality of program modules". Furthermore, to the extent the Examiner has equated Carr's comparison block with the "plurality of program modules", the differences between the hardware-implemented comparison block and the software-implemented "plurality of program modules" have already been discussed above.

Because Carr does not teach each and every feature of claim 1, it cannot anticipate that claim. Dependent claims 4, 5 and 10-13 are also not anticipated by Carr for the same reasons as independent claim 1 from which they depend and further in view of their own respective features. Accordingly, Applicants respectfully request that the rejection of claims 1, 4, 5 and 10-13 under 35 U.S.C. § 102(e) be reconsidered and withdrawn.

Independent claim 14 is directed to a method for classifying a data packet in a network interface that includes the step of "generating a plurality of optimized program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter". As noted above in regard to claim 1, Carr does not teach or suggest the generation of such program modules. Therefore, Carr

cannot anticipate claim 14. Accordingly, Applicants respectfully request that the rejection of claim 14 under 35 U.S.C. § 102(e) be reconsidered and withdrawn.

Independent claim 15 is directed to a method of classifying a data packet in a network interface that includes the step of "generating a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter". As noted above in regard to claim 1, Carr does not teach or suggest the generation of such program modules. Therefore, Carr cannot anticipate claim 15. Dependent claims 18, 19 and 24-26 are also not anticipated by Carr for the same reasons as independent claim 15 from which they depend and further in view of their own respective features. Accordingly, Applicants respectfully request that the rejection of claims 15, 18, 19 and 24-26 under 35 U.S.C. § 102(e) be reconsidered and withdrawn.

Independent claim 27 is directed to "a computer program product comprising a computer useable medium having computer program logic for enabling a processor in a network interface to classify a data packet". The computer program product includes "means for enabling the processor to generate a plurality of program modules, each of said plurality of program modules for testing for adherence to at least one corresponding classification parameter". As noted above in regard to claim 1, Carr does not teach or suggest such a means. Therefore, Carr cannot anticipate claim 27. Accordingly, Applicants respectfully request that the rejection of claim 27 under 35 U.S.C. § 102(e) be reconsidered and withdrawn.

Rejections Under 35 U.S.C. § 103

Claims 2, 6-9, 16, 20-23, 28 and 30-39

The Examiner has rejected claims 2, 6-9, 16, 20-23, 28 and 30-39 under 35 U.S.C. § 103(a) as being unpatentable over Carr in view of Synnestvedt. Synnestvedt does not in any way remedy the deficiencies of Carr with respect to independent claims 1, 15 and 27 as discussed above. For example, like Carr, Synnestvedt does not teach or suggest the generation of a plurality of program modules, each of the plurality of program modules for testing for adherence to at least one corresponding classification parameter.

Consequently, the combination of Carr and Synnestvedt cannot render independent claims 1, 15 or 27 obvious. Claims 2 and 6-9 are not rendered the obvious by the combination of Carr and Synnestvedt for the same reasons as independent claim 1 from which they depend and further in view of their own respective features. Claims 16 and 20-23 are not rendered obvious by the combination of Carr and Synnestvedt for the same reasons as independent claim 15 from which they depend and further in view of their own respective features. Claims 28 and 30-39 are not rendered obvious by the combination of Carr and Synnestvedt for the same reasons as independent claim 27 from which they depend and further in view of their own respective features. In view of the foregoing, Applicants respectfully request that the rejection of claims 2, 6-9, 16, 20-23, 28 and 30-39 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claims 3 and 17

The Examiner has rejected claims 3 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Carr in view of U.S. Patent No. 6,570,884 to Connery *et al.*

("Connery). Connery does not in any way remedy the deficiencies of Carr with respect to independent claims 1, 15 and 27 as discussed above. For example, like Carr, Connery does not teach or suggest the generation of a plurality of program modules, each of the plurality of program modules for testing for adherence to at least one corresponding classification parameter.

Consequently, the combination of Carr and Connery cannot render independent claims 1, 15 or 27 obvious. Claim 3 is not rendered the obvious by the combination of Carr and Connery for the same reasons as independent claim 1 from which it depends and further in view of its own respective features. Claim 17 is not rendered obvious by the combination of Carr and Connery for the same reasons as independent claim 15 from which it depends and further in view of its own respective features. In view of the foregoing, Applicants respectfully request that the rejection of claims 3 and 17 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claim 29

The Examiner has rejected claim 29 under 35 U.S.C. § 103(a) as being unpatentable over Carr in view of Synnestvedt and further in view of Connery. Neither Synnestvedt nor Connery in any way remedy the deficiencies of Carr with respect to independent claims 1, 15 and 27 as discussed above. For example, like Carr, Synnestvedt and Connery do not teach or suggest the generation of a plurality of program modules, each of the plurality of program modules for testing for adherence to at least one corresponding classification parameter.

Consequently, the combination of Carr, Synnestvedt and Connery cannot render independent claims 1, 15, or 27 obvious. Claim 29 is not rendered the obvious by the

combination of Carr and Connery for the same reasons as independent claim 27 from which it depends and further in view of its own respective features. In view of the foregoing, Applicants respectfully request that the rejection of claim 29 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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